7 Recommendations

7.1 Background

This section presents recommendations developed through the scenario-based findings presented in Chapter 6 of this report. The region's energy odyssey is just beginning in terms of dealing with market dynamics, uncertainty, volatile energy prices, evolving energy policy, and the evaluation of energy infrastructure investment options. While the region has gone through substantial energy pricing stresses over the past 2 years, there are significant risks that remain. Many of the region's energy problems are unsolved, and there is a need to identify options to create a more secure energy future rather than one that resembles the reactive past. The San Diego region has an opportunity to manage this condition in the future. The fundamental criteria for addressing the region's energy future includes the following:

- **Diversification of energy supply.** The region needs to be proactive in diversifying electricity, natural gas and other energy resources serving the region.
  - Develop a portfolio of resource options that help protect the region from supply disruptions and price volatility. The region should select an energy resource portfolio consisting of targeted proportions of energy supply options based on cost and reliability factors.
  - A preference toward lower cost, clean energy options should be pursued.
  - The region should recognize that additional transmission assets are valuable and necessary to promote increased reliability, price stability and access to potentially less expensive electricity supply from the south and east.
  - The region needs to develop an improved bi-national coordination and collaboration program for broad regional energy infrastructure development and consider the deployment of clean and renewable energy resources.
  - It is important to recognize that not all "demand-side" and renewable resources have equivalent capacity values based on availability when needed. Nevertheless, these options are important hedges to market price volatility, in addition to other financial instruments that exist.
  - Options and hedges will be needed to limit the impacts of continued natural gas price volatility. While combined cycle gas turbines built inside the region offer the best opportunities for more efficient combustion and emissions reduction over base units, there is the risk of price volatility from over-reliance on natural gas.
- **The continued threat of market power is a risk for the region.** The region needs to guard against the threat of market power for both electricity and natural gas supply. There is growing evidence of these abuses in both energy markets. Natural gas supply and price will drive much of the energy economy in San Diego County and the Western states over the next 10 to 15 years. A constant vigilance on comparing California border prices to other regional city gate prices is needed, and a close monitoring of intrastate natural gas transmission costs is also needed.
- **The continued negative impacts of the evolving market.** The region needs to protect itself against additional experiments in market design. In spite of how hard California worked to "get it right" by developing a working market design, the outcome of California's effort is now painfully evident. In particular, San Diego County experienced the first significant pain of this experiment and is experiencing continued economic stress. The high cost of energy that the region is facing will have a critical impact on future job creation and the quality of life in the county. Now the condition is even worse because no real permanent solution has yet been identified. The region needs to develop its own regional energy strategy and coordinate the development of future resources that help support future economic expansion in the region and not retard growth.

  - There will likely be significant political maneuverings among the California agencies, the Western states and the federal government—notably the Federal Energy Regulatory Commission (FERC)—on market design. The region needs to be active in shaping this discussion and outcome on market design. The region should also leverage the use of regional core competencies and capabilities in shaping its own regional energy supply capability as embodied by the City and County of San Diego, the Port of San Diego the San Diego County Water Authority, the San Diego Association of Governments and its Regional Energy Office. SDG&E as the local distribution company also has an important role to play as does Sempra, CFE and merchant developers.

- **Creation of a more formal regional approach to energy planning, decision-making, and resource allocation.** The region should seriously consider the creation of an energy development authority to diversify ownership and moderate the market dynamics of energy assets serving San Diego County. This Authority could support the use of public capital for electric and natural gas supply projects and invest in large-scale energy efficiency, distributed generation and clean energy resources. In addition, new merchant generation and transmission projects will be identified in states outside California, which have the potential to serve the San Diego market. Every possible attempt should be made to consider entering into supply agreements or joint ventures with these projects if found to be cost effective, and contribute to market competition to stabilize or lower energy prices. This energy development authority should also cooperate with the Port of San Diego, the San Diego Water Authority and other agencies in considering current and potentially new asset development opportunities in the county to meet future supply requirements. The region needs to seriously consider the use of these public assets as a hedge against excessive reliance on merchant development and market-based development initiatives. This is especially critical considering that the California power contracts as recently renegotiated still remain above market prices and current rates in San Diego County are among the highest in the nation.

- **A more comprehensive and coordinated approach to the evaluation of new energy assets**. This includes completing a comprehensive load flow evaluation regarding the location of new power plants and transmission lines. No new significant energy infrastructure projects should be developed until such an evaluation is completed. Trade-offs between new transmission and new generation plant investments in either North or South county locations should be evaluated.

- **Closer monitoring of regulatory proceedings, in particular, increased integration of SDG&E and SoCal gas planning, resource supply, and regional transmission pricing**. Greater monitoring of legislation and regulatory initiatives needs to be completed by the region and formal testimony and interaction in such proceedings is needed. This active engagement will be critical if the region embarks on its own energy supply and demand management strategy.

- **Explore strategies to reduce** natural gas transportation prices from the California border to San Diego**.** Regulatory decisions over the next 2 years can have a major impact on the delivered price of natural gas to the region. The region should also seek ways to obtain gas supplies from lower cost natural gas production regions.

- **Significant cost-effective distributed generation and renewable supplies exist and should be maximized, along with energy efficiency and demand response programs up to the avoided costs of the CDWR contracts.** These resources are good insurance against market perturbations and dysfunctions and protect against political risk and infrastructure failure.

7.2 Considerations for Key Infrastructure Development

7.2.1 Short Term (2002–2006)

Organizational Planning and Coordination

1. **Create a joint energy development authority.** This organization can solidify community support and garner sorely needed financial resources for new energy infrastructure projects. Organizations may include: the cities within San Diego County, the County of San Diego, the San Diego County Water Authority, the Port of San Diego, and the San Diego Regional Energy Office. Close coordination with SDG&E, Sempra Energy and other merchant developers will be required.
2. **Strengthen the existing** regional energy policy planning council**.** The current Regional Energy Policy Advisory Council (REPAC) has some of the attributes necessary, but more formal rules and provisions on policy review and affirmation are needed to build regional consensus.
3. **Increase participation in appropriate state and federal regulatory and legislative proceedings and forums.** The regional has the ability to influence these proceedings and to inform and gain support for its regional energy strategy. In particular, FERC is likely to have a greater impact on Western regional electric and natural gas supply economics and markets in the future.

Electric Infrastructure

1. **Expedite the repowering or replacement of the Cabrillo and South Bay plants and ensure that the Otay Mesa plant is built.** This could provide a good share of the locally needed capacity over the next 10 to 20 years and will increase regional gas efficiency. Also, some of the consolidation and financial plights of local generators may be an opportunity for the region to acquire assets that may provide a hedge to mitigate some market risk.
2. **Monitor and evaluate potential merchant transmission development consortiums as they become known.** Some new developments are underway that may provide access to lower cost electricity.
3. **Complete a region-wide generation and transmission optimization transmission study** within 1 year.

Natural Gas Infrastructure

1. **Investigate ways to reduce natural gas transmission costs for deliveries from the California border**. More access to natural gas supply and pipeline capacity should be investigated.
2. **Closely monitor and evaluate the planning and cost allocation of the SoCalGas costs of service that serve SDG&E.**
3. **Encourage the interconnection of the region's supply to Baja Norte pipeline** and potential expansion of this pipeline in order to increase supply options.

Energy Efficiency, Demand Reduction Programs, Distributed Resources and Renewables

1. **Aggressively promote energy efficiency, distributed resources and renewables as a "supply" resource**. The region needs to achieve consensus on what the most attractive targets are considering other resource and market dynamics. The investment level of these resources needs to be offset with avoided supply costs.
    - **A regional conservation and distributed generation investment market should be created** whereby investments into energy efficiency can result in an entitlement for off-setting possible natural gas or emissions curtailments. A conservation and emissions bid market should be considered, as market conditions warrant.

- **Aggressively pursue renewable resource opportunities in San Diego County**. Significant resources of wind exist in the County. Photovoltaics due to estimated cost reduction over the next 15 years and technology/manufacturing improvements can provide a substantial amount of renewable energy in the region.

2. **Local ordinances, rules and tax/bond funds should be considered** to help reach the conservation and renewable targets that have been defined. Public financing could be acquired through state and local bonds and revenues recovered through energy savings.
3. **Maximize the efficiency of existing public benefit funds and seek additional funds.** The region contributes over $65 million per year to fund public interest programs. The region should ensure these funds are being spent and allocated to the best interest of the public. If necessary, additional funds should be made available if it is shown that the public investment is cost-effective and warranted to support the region's strategy. Close monitoring of the spending of these public resources is necessary with the results reported to the public on a regular basis. Periodic market research should be completed to evaluate the state of market conditions and the need for additional program improvements, resource reallocation or additions.
4. **The region should strongly support the development of appropriate time-of-use pricing for electricity.** There are a few tariffs and programs that take advantage of the time-of-use pricing, however, more aggressive state policy is necessary to maximize this valuable approach.
5. **The highest priority should be placed on maximizing the efficiency of existing, particularly older buildings.** Homes and buildings built today are much more efficient than those built 20 to 30 years ago. The greatest opportunity exists to maximize efficiency of facilities while upgrades and revitalization are occurring.
6. **Economic tax credits to promote smart energy decisions.** The region should consider an added economic development tax credit for projects that incorporate a certain level of enhanced efficiency and for businesses that promote and support sustainable energy practices.

7.2.2 Mid Term (2006–2010)

Organizational Planning and Coordination

1. **Coordinate city and county zoning and land use planning** with needed energy infrastructure development in San Diego County. This can be accomplished through the current plans to incorporate the Regional Energy Strategy into the Regional Comprehensive Plan. Regional plans should include pre-purchased and set aside energy transportation corridors that are related and set aside based on energy, wildlife and best use land use principles.
2. **Link regional energy resource development initiatives to addressing global warming issues**. Major cities in the United States are developing their own greenhouse gas initiatives.

Electric Infrastructure

1. **Develop an appropriate level of transmission to out-of-region supply.** Additional transmission lines needed in order of importance include: 1. transmission lines to the south; 2. a line to the north (2004–2010 time period), and to the east in the post-2010 time period.
2. **Develop more electric transmission system interconnections** with renewable energy development sites in Eastern San Diego County and the North County. Special attention is also needed for new transmission lines to new renewable and DG rites in Imperial Valley and the California-Mexico border areas.
3. **Coordinate with Baja California to promote the development of local renewable resources**. A significant amount of renewable resources exist particularly, wind and

geothermal. The primary barrier to accessing these resources is the lack of transmission interconnects to the grid.

Natural Gas Infrastructure

1. **Position the region to be better insulated from the risks posed by the declining availability of natural gas.** There is a possibility that domestic natural gas production will decline in the United States during this period. The implications of this situation on the availability, price and spark spread of natural gas to electric prices could be significant. The volatility of gas and electric prices may also be significant. The value of potentially relying on LNG and building access to new gas markets could also potentially set a high marginal cost of gas.
   - Additional interstate supply and delivery of natural gas into the region needs to be considered. The potential for Rocky Mountain Gas and natural gas from other supply basins should be considered.
   - The region should support additional interstate natural gas supply directly into the region to control intrastate natural gas transportation prices.

Energy Efficiency, Distributed Resources and Renewables

1. **Position the region** to take advantage of a maturing wind and photovoltaic markets**.** As demand continues to increase for renewable resources throughout the world and the United States, economic opportunities to support these industries will grow. The region should position itself as the "Silicon Valley" of advanced energy technology development firms. A strong economic development program that recruits a cadre of clean energy manufacturers, developers and service companies should be created. The region should also leverage the growing number of local energy service and automation companies that exist in the area.
2. **Continue to maximize the benefit of resources that reduce the peak demand.** A significant amount of dispatchable peak load from demand reduction efforts should be available that can assist in meeting reliability and economic dispatch requirements of the region.

7.2.3 Long Term (Post 2010)

Organizational Planning and Coordination

1. **The possibility exists to create an integrated North American energy power market that includes WECC, Canadian and Mexican power**. A fully integrated grid with regional controls could be created, which would help stabilize western regional power prices, plus provide access to less expensive power sources.
   - FERC should work closely with the Government of Mexico to address a coordinated approach to energy markets and infrastructure projects in the region. A bi-national energy infrastructure commission should be created with the governments of Canada and Mexico.
   - This may create an opportunity for the San Diego region to diversify its fuel supply for generation. It may also create some risks if local plants cost too much to produce power which would stimulate the need for greater access to the Palo Verde region power.
2. **Bi-national regional commitments and adherence to common environmental policy should be encouraged**.

Electric Infrastructure

1. **If not well managed, in-basin generating assets may run below 35% and reserves will continue below what is needed to moderate price volatility.** This is especially a risk in the post-2020 time period. Depending on committed transmission development projects, a third 500-MW plant may be needed. The potential exists to expand existing facilities, such as a possible second plant at the Otay Mesa site.

2. **Additional transmission may be needed** to increase reliability, increase the simultaneous import levels and provide additional capacity, which will start declining unless new generating projects are identified.

3. **Emerging technologies will present options for more efficient management of resources.** For example, a potential direct-current (DC) transmission or other type of transmission line currently under development may also be available for better, more efficient delivery of less volatile priced power. The need for this capacity will be based on other project developments, including both demand-side and development of DG activity in the region.

Natural Gas Infrastructure

1. **The region should position itself to take advantage of the one or two LNG facilities that may be operational by this time.** Additional production and supply diversity for natural gas may be needed. Great concern exists to not only meet natural gas demand but to also diversify supply sources and avoid market power threats.

Energy Efficiency, Distributed Resources, and Renewables

1. **Position the region to benefit from new and emerging technologies that will provide greater flexibility, options and efficiency.** By this time all conventional and low- and moderate-cost DSM should be implemented. Potential future breakthrough DSM projects may include the use of microchips for control, nano-technology for high-efficiency lighting and low energy displays, fuel cells and advanced solar systems. There may also be a resurgence of landfill and bio-solid use in selected locations. DG/DR systems could also be available for smaller customer uses, including some smaller residential applications.

2. **Position the region to benefit from new and emerging technologies that will provide greater use of renewables.** A significant amount of renewable energy production may also occur during this period.